

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
10/736,084	12/15/2003	Joseph C. Walsh	2003P88074US

## Response To OFFICIAL ACTION

EXAMINER
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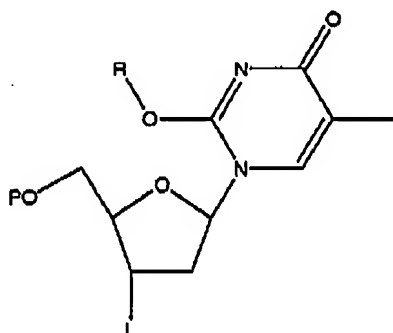
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## AMENDMENTS TO THE CLAIMS

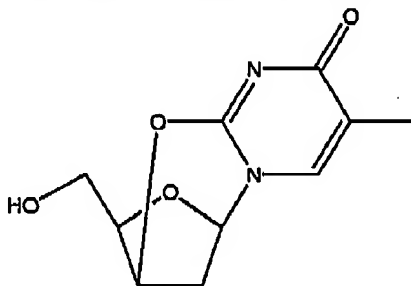
In the Claims, please make the following amendments:

1. (Previously presented) A method for preparing a compound having the following formula:

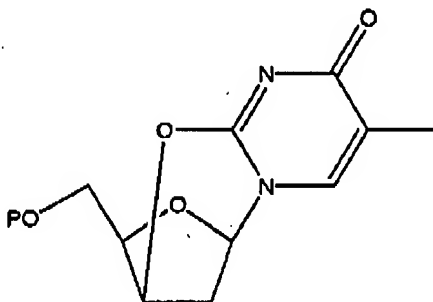


wherein R is an alkoxy blocking group; P is a hydroxyl protecting group; and L is a leaving group, the method comprising the steps of:

a. reacting a compound of the formula:



with a hydroxyl protecting group to produce a compound having the following formula:



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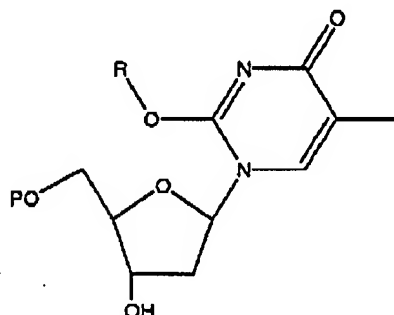
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wherein P is the same as defined above;

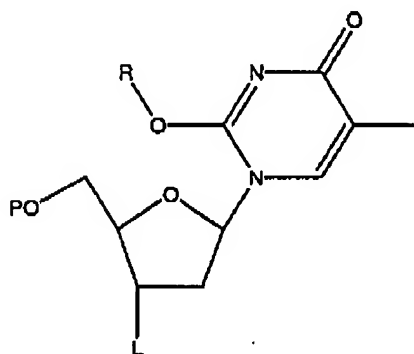
b. enolating the reaction product of step (a) produce a compound having the following formula:



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wherein P and R are the same as defined above; and

c. incorporating a leaving group to produce a compound having the following formula:



2. (Original) The method according to Claim 1, wherein P is selected from the group consisting of methoxymethyl ether, methylthiomethyl ether, 2-methoxyethoxymethyl ether, 1-ethoxyethyl ether, 1-methyl-1-methoxyethyl ether, t-butyl ether, allyl ether, benzyl ether, 4-nitrobenzyl ether, o-nitrobenzyl ether, trityl ether, monomethoxytrityl ether, dimethoxytrityl ether, tritylone ether, tetrahydropyran ether, tetrahydrothiopyranyl ether, 4-methoxy tetrahydropyran ether, 4-methoxytetrahydrothiopyranyl ether, tetrahydrofuran ether, tetrahydrothiofuranyl ether, isobutyrate ester, pivaloate ester, adamantate ester, benzoate ester, 2,4,6-trimethylbenzoate ester, methyl carbonate,

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allyl carbonate, benzyl carbonate, p-nitrobenzyl carbonate, t-Bu carbonate, S-benzylthio carbonate, N-phenyl carbamate, and nitrate ester.

3. (Original) The method according to Claim 1, wherein P is selected from the group consisting of dimethoxytrityl, monomethoxytrityl, trityl, t-butyloxycarbonyl, t-butyldimethylsilyl, t-butyldiphenylsilyl, tetrahydropyranyl ether, tetrahydrofuranyl ether, ethoxyethyl ether, and 1-methyl-1-methoxyethyl ether.
4. (Original) The method according to Claim 1, wherein R is alkyl C<sub>1</sub>-C<sub>4</sub>, *i*-propyl, benzyl, cycloalkane C<sub>3</sub>-C<sub>6</sub>, phenyl, tosyl, acetate, or benzoate.
5. (Original) The method according to Claim 1, wherein R is methyl, ethyl, *i*-propyl, benzyl, or cycloalkane C<sub>3</sub>-C<sub>6</sub>.
6. (Original) The method according to Claim 1, wherein step (b) includes treating the reaction product of step (a) with an alkoxide having 1 to 4 carbons, cycloalkoxide C<sub>3</sub>-C<sub>6</sub>, phenoxide, tosylate, acetate, or benzoate.
7. (Original) The method according to Claim 6, wherein the alkoxide is sodium methoxide.
8. (Original) The method according to Claim 1, wherein L is a sulfonate ester.
9. (Original) The method according to Claim 1, wherein L is selected from the group consisting of mesylate, nosylate, tosylate, and triflate.
10. (Previously presented) A method for preparing a precursor for the preparation of a radiolabeled nucleoside comprising:
  - a. converting a 2-deoxy nucleoside into a 2,3'-anhydronucleoside;
  - b. reacting the 2,3'-anhydronucleoside with a hydroxyl protecting group to produce a 2,3'-anhydronucleoside derivative wherein the 5'-O group is protected;

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c. reacting the protected 2,3'-anhydronucleoside derivative with a reagent that opens the 2,3'-anhydro-ring and enolates the 2-position on the pyrimidine ring; and

d. incorporating a leaving group to produce the radiolabeled nucleoside precursor;

where the nucleoside base is thymidine or uridine.

11. (Previously presented) The method according to Claim 10, wherein the nucleoside is thymidine or uridine.

12. (Original) A method for preparing a precursor for the preparation of 3'-Deoxy-3'-[<sup>18</sup>F]-fluoro-thymidine (<sup>18</sup>F-FLT) comprising:

a. converting thymidine into 2,3'-anhydrothymidine;

b. reacting the 2,3'-anhydro thymidine with a hydroxyl protecting group to produce a 2,3'-anhydrothymidine derivative wherein the 5'-O group is protected;

c. reacting the protected 2,3'-anhydrothymidine derivative with a reagent that opens the 2,3'-anhydro-ring and enolates the 2-position on the pyrimidine ring; and

d. incorporating a leaving group to produce the <sup>18</sup>F-FLT precursor.

13. (Original) The method according to Claim 12, wherein step (c) produces an enol having an -O-R group attached to the 2-carbon.

14. (Previously presented) A method according to Claim 13, wherein R is alkyl C<sub>1</sub>-C<sub>4</sub>, benzyl, cycloalkane C<sub>3</sub>-C<sub>6</sub>, phenyl, tosyl, acetate, or benzoate.

15. (Original) A method according to Claim 12, wherein step (c) includes treating the reaction product of step (b) with an alkoxide.

16. (Previously presented) A method according to Claim 15, wherein the alkoxide is selected from the group consisting of sodium methoxide, and sodium ethoxide.

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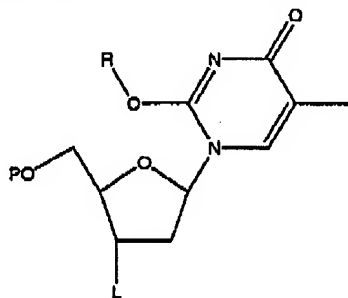
17. (Original) A method according to Claim 12, wherein the hydroxyl protecting group is dimethoxytrityl, monomethoxytrityl, trityl, t-butyloxycarbonyl, t-butyldimethylsilyl, t-butyldiphenylsilyl, tetrahydropyranyl ether, tetrahydrofuranyl ether, ethoxyethyl ether, or 1-methyl-1-methoxyethyl ether.

18. (Original) A method according to Claim 12, wherein the hydroxyl protecting group is dimethoxytrityl, monomethoxytrityl, or trityl.

19. (Original) A method according to Claim 12 wherein the leaving group is a sulfonate ester.

20. (Original) A method according to Claim 19, wherein the leaving group is mesylate, tosylate, nosylate, or triflate.

21. (Previously presented) A compound having the following formula:



wherein R is alkyl C<sub>1</sub>-C<sub>4</sub>, benzyl, cycloalkane C<sub>3</sub>-C<sub>6</sub>, phenyl, tosyl, acetate, or benzoate; P is a hydroxyl protecting group; and L is a leaving group.

22. (Original) A compound according to Claim 21, wherein R is methyl or ethyl.

23. (Original) A compound according to Claim 21, wherein P is methoxymethyl ether, methylthiomethyl ether, 2-methoxyethoxymethyl ether, 1-ethoxyethyl ether, 1-methyl-1-methoxyethyl ether, t-butyl ether, allyl ether, benzyl ether, 4-nitrobenzyl ether, o-nitrobenzyl ether, trityl ether, monomethoxytrityl ether, dimethoxytrityl ether, tritylone ether; tetrahydropyran ether, tetrahydrothiopyranyl ether, 4-methoxy tetrahydropyran ether, 4-methoxytetrahydrothiopyranyl ether, tetrahydrofuran ether, tetrahydrothiofuran ether,

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ether, isobutyrate ester, pivaloate ester, adamantate ester, benzoate ester, 2,4,6-trimethylbenzoate ester; methyl carbonate, allyl carbonate, benzyl carbonate, p-nitrobenzyl carbonate, t-Bu carbonate, S-benzylthio carbonate, N-phenyl carbamate, or nitrate ester.

24. (Original) A compound according to Claim 21, wherein P is dimethoxytrityl, monomethoxytrityl, trityl, t-butyloxycarbonyl, t-butyldimethylsilyl, t-butyldiphenylsilyl, tetrahydropyranyl ether, tetrahydrofuranyl ether, ethoxyethyl ether, or 1-methyl-1-methoxyethyl ether.

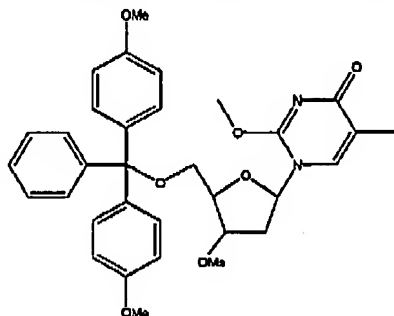
25. (Original) A compound according to Claim 21, wherein P is dimethoxytrityl.

26. (Original) A compound according to Claim 21, wherein L is a sulfonate ester.

27. (Original) A compound according to Claim 21, wherein L is selected from the group consisting of p-(2,4-dinitroanilino)benzenesulfonyl, benzenesulfonyl, methylsulfonyl (mesylate), p-methylbenzenesulfonyl (tosylate), 4-nitrobenzene sulfonyl (nosylate), p-bromobenzenesulfonyl, trifluoromethylsulfonyl (triflate), trichloroacetimidate, acyloxy, 2,2,2-trifluoroethanesulfonyl, imidazolesulfonyl, and 2,4,6-trichlorophenyl.

28. (Original) A compound according to Claim 21, wherein R is methyl, P is dimethoxy trityl, and L is mesylate, tosylate, or nosylate.

29. (Original) A compound having the following formula:



wherein Ms is methylsulfonyl.

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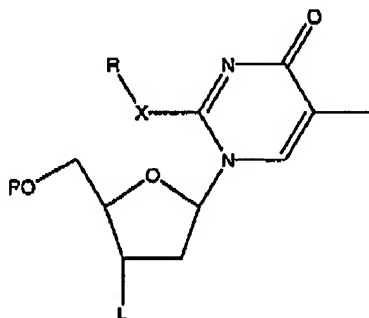
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30. (Previously presented) A compound having the following formula:



wherein R is alkyl C<sub>1</sub>-C<sub>4</sub>, benzyl, cycloalkane C<sub>3</sub>-C<sub>6</sub>, phenyl, tosyl, acetate, or benzoate; P is a hydroxyl protecting group; X is oxygen, sulfur, or nitrogen, and L is a leaving group.

31. (Original) A compound according to Claim 30, wherein L is halogen, p-(2,4-dinitroanilino)benzenesulfonyl, benzenesulfonyl, methylsulfonyl (mesylate), p-methylbenzenesulfonyl (tosylate), 4-nitrobenzene sulfonyl (nosylate), p-bromobenzenesulfonyl, trifluoromethylsulfonyl (triflate), trichloroacetimidate, acyloxy, 2,2,2-trifluoroethanesulfonyl, imidazolesulfonyl, or 2,4,6-trichlorophenyl.

32. (Original) A compound according to Claim 30, wherein P is dimethoxytrityl, monomethoxytrityl, trityl, t-butyloxycarbonyl, t-butyldimethylsilyl, t-butyldiphenylsilyl, tetrahydropyranyl ether, tetrahydrofuranyl ether, ethoxyethyl ether, or 1-methyl-1-methoxyethyl ether.

- 33-34. (Canceled)